



**Testimony of**

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**To the**

**House Subcommittee on  
Coast Guard and Maritime Transportation**

**On the subject of**

**Interim Final Regulations on Port Security**

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## **Introduction**

MariTEL, Inc. (“MariTEL”), per a request from the House Subcommittee on Coast Guard and Maritime Transportation, hereby submits its testimony regarding the implementation of an Automatic Identification System (“AIS”) as envisioned by the Maritime Transportation Security Act of 2002 (MTSA). MariTEL’s primary purpose for providing this testimony is to inform Congress that the MTSA’s maritime domain awareness expectations for AIS will not be realized without an agreement from MariTEL and other commercial entities to use an extensive amount of spectrum that is licensed by the FCC.

## **MariTEL- Exclusive Geographic Licensee**

MariTEL is the largest holder of VHF Public Coast (VPC) station spectrum in the United States. In 1998, MariTEL actively participated in the FCC’s auction #20 of VPC licenses and was the winning bidder for all nine (9) maritime VPC areas. Among the channels for which MariTEL is licensed, is channel 87, which is designated as “AIS1” by the International Telecommunications Union (ITU) for use on the high seas. In addition to channel 87, MariTEL is also licensed to operate on between eight and nine additional<sup>1</sup>, adjacent channels that comprise the only remaining 25 kHz duplex marine VHF public correspondence frequencies in the U.S.

## **Other Commercial Entities- Incumbent Licensees**

Prior to the FCC’s auction, there were commercial entities who held site-specific licenses using marine public correspondence frequencies, including channel 87. While not formally represented by MariTEL in this testimony, there are ten companies that have rights to operate one or more site-specific stations. While MariTEL’s spectrum rights cover all the U.S. navigable waterways, the site specific assets of these entities are located in close proximity to strategic maritime areas such as the San Francisco Bay, the Port of Los Angeles/Long Beach, the Port of Valdez, Mobile Bay and the Gulf of Mexico. Not all licensed operations are for maritime use; in fact, one such system in Alaska uses spectrum that overlaps channel 87 for an industrial controls application to manage the flow of oil in the Alaskan pipeline.

## **What Do the FCC’s Rules Require MariTEL to Provide to the USCG?**

Section 80.371 of the FCC’s rules (FCC 80.371) only requires MariTEL to provide up to two narrowband offset channels for use by the U.S. Coast Guard (USCG) in the Ports and Waterways Safety System (PAWSS)<sup>2</sup>. This structure affords the geographic auction winner the ability to have full operational use for all licensed 25 kHz channels with minimal geographic spacing requirements in PAWSS areas and no limitations outside PAWSS areas.

On August 4, 1997, the USCG filed a Petition for Rule Making<sup>3</sup> requesting that the FCC make available “interleaved 12.5 kHz channels between public correspondence channels 24, 84, 25, 85, 26, 86, 27, 87, and 28” to implement an AIS. In 1997, the World Radio Council (WRC-97)

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<sup>1</sup> MariTEL also obtained rights to channel 88 in VPCs 1,5 and 7 above Line A, approximately 75 miles from the Canadian border through the FCC’s auction. Channel 88B has been identified as AIS 2 for use on the high seas.

<sup>2</sup> 47 C.F.R Section 80.371(c)(3).

<sup>3</sup> See *Amendment of Part 80 of the FCC Rules to Designate Maritime Channels and Allow Operation of Automatic Identification Systems and Related Safety Systems*, Petition for Rule Making (filed Aug. 4, 1997) (“Petition for Rule Making”).



set aside channels 87B and 88B for AIS on the high seas, but due to input from the USCG, provided that, where those frequencies are unavailable, other frequencies may be used. The USCG, as our nation's competent authority, is responsible for securing and managing the frequencies to be used for AIS in the U.S. territorial waters. Prior to FCC auction #20 in December 1998, the USCG formally requested that channel 87 be used for AIS. The FCC's Third Report and Order<sup>4</sup>, and resultant Part 80 regulations, rejected this request stating "while we considered setting aside channel 87B as one of the AIS channels, we conclude that the public interest benefits flowing from such an approach are minimal as compared to the potential adverse impact on our licensing of public coast stations". Additionally, the FCC stated the following reasons to conclude that, "we will not designate channel 87B as an AIS channel":

1. "setting aside channel 87B as an AIS channel would require relocation of the thirty-four public coast stations currently authorized to use channel 87"
2. "we believe that setting aside one broadband channel and one narrowband channel for AIS might complicate AIS implementation or raise the cost of necessary equipment"
3. "this approach would encumber one broadband channel and three narrowband channels, instead of encumbering two narrowband channels as proposed by the Coast Guard, because setting aside channel 87B would leave the surrounding narrowband channels unavailable"
4. "setting aside channel 87B would harm maritime VPC licensees' ability to construct wide-area systems by leaving most with no more than eight broadband channels"

These reasons establish the rationale for FCC 80.371, which requires MariTEL to make available to the USCG up to two narrowband, offset channels "for use in the PAWSS". The reasoning is that the proposed interleaving of two narrowband-offset channels would have a minimal impact on the VPC licensee. In a subsequent report, the NTIA provided guidelines for how 25 kHz VPC and 12.5 kHz AIS channels could best operate together in a report titled, *Electromagnetic compatibility between Marine Automatic Identification and Public Correspondence Systems in the Maritime Mobile VHF band*. The NTIA's report "was evaluated by NTIA and the USCG in the PAWSS environment in New Orleans for narrowband AIS transponders. The test results indicate that AIS operations on the 12.5 kHz interstitial duplex channels is interoperable with voice operations on the adjacent 25 kHz duplex public correspondence channels provided that some geographic separation is provided between the shore stations and mobile units".<sup>5</sup> While the NTIA report was conducted on a previous AIS technology, the report predicts worse results for the current version of AIS. Additionally, the USCG worked diligently to ensure that current AIS specifications [1371-1] support the use of duplex, narrowband operations such that it can be implemented in a manner that meets the FCC's regulations.

#### **Memorandum of Agreement between MariTEL and the USCG**

Following the award of the FCC licenses for VPCs 1-9, MariTEL entered into negotiations with the USCG to fulfill its obligation to make available up to two narrowband offset channels

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<sup>4</sup> FCC 98-151 released July 9, 1998

<sup>5</sup> NTIA Report 00-376



available for use in PAWSS. The negotiations lasted well over two years and resulted in a Memorandum of Agreement (MOA) signed in March of 2001. The MOA identified duplex channel 87A/B and constrained its use to 12.5 kHz bandwidth<sup>6</sup> for use in PAWSS. Shortly after finalizing the MOA, MariTEL attempted unsuccessfully to continue negotiations with the USCG to formalize certain key operational issues by executing a definitive agreement.<sup>7</sup> The USCG rejected this request<sup>8</sup> and instead was satisfied with the MOA framework that “is designed as a vehicle for general consensus”<sup>9</sup>.

Following the tragic events of 9/11, the increased focus on homeland security and the resultant MTSA of 2002 placed additional responsibilities upon the USCG to include maritime surveillance and port security in addition to AIS VTS operations for vessel safety and navigation.

In October, November and again in December 2002, MariTEL engaged the USCG to better understand the MTSA’s impact on the USCG’s ability to implement an AIS solution as constrained by the framework of the MOA. MariTEL solicited feedback regarding, among others, the following questions/concerns:

1. Had the USCG shifted away from the deployment of a 12.5 kHz plan as described in the MOA?
2. What guidelines, if any, should be used to avoid adjacent channel interference?
3. What guidelines should be used to avoid co-channel interference?
4. How would these risks be alleviated to prevent reliability and safety issues?
5. When would the USCG provide notice to MariTEL, per the MOA, that an AIS network was to be deployed in a certain area?
6. What is the deployment schedule for the use of MariTEL frequency in PAWSS locations?
7. What are the geographic boundaries of PAWSS locations?
8. Is there a plan to obtain additional appropriations from Congress to expand the number of ports included in PAWSS?

Our inability to obtain a congruent view of the USCG’s new requirements led MariTEL to conclude that the narrow framework of the MOA would not provide for the effective implementation of the MTSA.

### **Resolution of the Memorandum of Agreement**

MariTEL and the USCG continued to discuss the implementation and interpretation of the MOA from December 2002 to May 2003 on a bi-weekly basis using face-to-face meetings, teleconferences, e-mail and formal correspondence. Both parties met in Alpharetta, GA March

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<sup>6</sup> The channel designated in the MOA was subsequently identified as channel 487 by ITU 1084-4 to establish a nomenclature for the operation of 157.325 / 161.975 MHz (center frequency of channel 87) on a narrowband basis.

<sup>7</sup> Reference April 2001 MariTEL letter to USCG.

<sup>8</sup> Reference April 2001 USCG letter to MariTEL.

<sup>9</sup> Statement made by Chris Mooradian, USCG attorney, March 19, 2003 in Alpharetta, GA.



18-19, 2003 to further discuss the MOA issues and to develop a set of possible solutions to reach a mutual agreement<sup>10</sup>. MariTEL proposed one solution that modified<sup>11</sup> the MOA and provided the USCG the following benefits:

1. Ability for all vessels in the U.S. territorial waters to safely and effectively use AIS transponders with seamless operations on channel 87B with 25 kHz to allow interoperability with the high seas frequency plan (AIS1 and AIS2).
2. Allowed to transmit using channel 87B with 25 kHz in federal VTS areas with a limited geographic basis.
3. Radio frequency (RF) framework with clearly defined interference boundaries.
4. Access to AIS information from non-Federal VTS areas.
5. Framework / partnership with MariTEL to allow local port authorities, law enforcement, marine exchanges, etc. access to the AIS network data.<sup>12</sup>

Additionally, MariTEL proposed two commercial solutions that the USCG was unable to entertain consistent with the requirements of the Federal Acquisition Regulations (FAR).

The USCG proposed a modification that:

- 1) Allows MariTEL to retain control of channel 87A since only the “B side” would be used for AIS.<sup>13</sup>
- 2) Provides MariTEL use of channel 87B in non-maritime areas.<sup>14</sup>
- 3) Ensures the USCG will investigate and consider not providing real time data as it relates to automatic vessel location (AVL) services and other time vital information that could eliminate MariTEL’s opportunity to provide these services to non-federal government customers.<sup>15</sup>

At the conclusion of the meeting, MariTEL and the USCG agreed there was no consensus regarding any of the MOA issues. MariTEL did not value the USCG’s proposed modification and the USCG provided no feedback as to the viability of MariTEL’s proposed modification. MariTEL further stated that the only plausible resolution to the MOA issues was through a commercial solution that, by FAR regulation, the USCG was unable to discuss. However, the

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<sup>10</sup> Reference meeting minutes prepared by MariTEL and submitted to the USCG. The USCG informally agreed with the accuracy but, in spite of MariTEL’s request, provided no formal feedback accepting, rejecting or clarifying the document.

<sup>11</sup> The solution provided the USCG access to channel 87 with 25 kHz in the PAWSS areas and allowed MariTEL to retain access in all other areas to provision AIS services to non-USCG port authorities.

<sup>12</sup> The AIS data is accessible to all mariners with an AIS transponder. However, it is not commercially feasible to deploy a separate, dedicated network solely for the collection and distribution of AIS information.

<sup>13</sup> The offer to return channel 87A provides little value, as there are limited opportunities for simplex applications.

<sup>14</sup> The USCG only has access to VPC spectrum for AIS in PAWSS that, by definition, can only be in maritime areas. Therefore, any VPC spectrum to be used by the USCG for PAWSS can be re-used in non-maritime areas except where limited by incumbents or VPC boundaries.

<sup>15</sup> The USCG was concerned that this scenario is not plausible and expressed a desire to allow marine exchanges and others access to the information.



USCG did suggest that MariTEL could submit an unsolicited proposal per FAR Part 15 as a mechanism to potentially resolve the MOA issues via a commercial solution.<sup>16</sup>

MariTEL promptly submitted a formal request on March 20, 2003 to amend the MOA. The proposed modification required a decision by April 3, 2003 regarding the viability of the general framework and whether the proposed modification provided sufficient common ground for continued discussions. At the USCG's request, MariTEL agreed to extend the review period of the proposed modification to allow time for review of the unsolicited proposal.

### **Termination of the Memorandum of Agreement**

The efforts of the USCG and MariTEL to resolve the bandwidth and geography issues of the MOA failed to provide an acceptable solution concerning the use of channel 87 for use in PAWSS communications. Additionally, the USCG knowingly proceeded with the following actions that could cause MariTEL irreparable harm that further complicated resolution of the MOA issues:

1. Expanded the number of AIS shore stations in PAWSS locations designed to employ channel 87 with 25 kHz operations.
2. Failed to instruct the Saint Lawrence Seaway Development Corporation (SLSDC) that the MOA did not constitute an agreement for their use of VPC spectrum and, at a minimum, did not allow 25 kHz operations.
3. Continued to communicate to other AIS stakeholders that the USCG had access to channel 87 for 25 kHz operations.
4. Failed to engage in meaningful discussions regarding interference guidelines for co-channel and adjacent channel operations.
5. Continued with the AIS mandatory carriage requirement that:
  - a. Would knowingly cause interference and impair MariTEL's ability to communicate with mariners on VPC channels adjacent to channel 87.
  - b. Would knowingly instruct mariners to deploy AIS transponders operating on the default channel 87 while risking unintended interference from licensed operations by MariTEL and other site-specific incumbents.
6. Failed to notify the International Maritime Organization (IMO) of the interference risks to Safety-of-Life-at-Sea (SOLAS) vessels when entering U.S. territorial waters.
7. Continued to assert to AIS stakeholders that channel 87 was a federal government channel instead of a VPC licensed channel whose use is governed by the FCC.

The USCG's unabated continuation of the aforementioned issues forced MariTEL to terminate the provisions of the agreement per Section 8(B) of the MOA and to notify the USCG that the authorization to employ channel 87 expired effective June 4, 2003<sup>17</sup>. Additionally, MariTEL requested that, pursuant to the procedures of FCC 80.371, the USCG submit up to two,

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<sup>16</sup> MariTEL submitted an unsolicited proposal to the USCG on June 2, 2003 for an AIS Managed Service Network (MSN) in response to the USCG's recommendation as a mechanism to potentially resolve the MOA issues via a commercial solution.

<sup>17</sup> See MariTEL May 5, 2003 MOA termination letter to USCG.





narrowband-offset channels for use in PAWSS. As a last resort, MariTEL offered to meet with the USCG on a weekly basis during the thirty-day expiration period to evaluate the proposed modifications previously submitted to the USCG on March 20, 2003 to determine if there was a general consensus that might warrant MariTEL's withdrawal of the termination<sup>18</sup>.

On May 16, 2003, the USCG acknowledged MariTEL's termination of the MOA and asserted they had six months to vacate the channel. The letter also requested that MariTEL identify the two, narrowband-offset channels pursuant to FCC 80.371. Additionally, in response to MariTEL's offer to extend the validity of MariTEL's proposed modification, the USCG indicated they would "fully evaluate" the "proposal in an effort to find a basis for a workable solution".<sup>19</sup> The USCG has not contacted MariTEL to further discuss the proposed modification.

MariTEL did not agree with the USCG's assertion that they had six months to vacate channel 87. However, in the spirit of cooperation to ensure safe maritime operations, MariTEL agreed to the request for six months but limited it to the then current PAWSS operations: Sault Ste. Marie, Lower Mississippi, Prince William Sound and Berwick Bay. The letter additionally requested the following:

- 1) That the USCG facilitate the removal of VPC channel 87 from the NTIA database for federal government use.
- 2) That the USCG notify all current and prospective AIS stakeholders that channel 87 is not available without an agreement from MariTEL effective June 4, 2003.
- 3) That the USCG notify the St. Lawrence Seaway Development Corporation (SLSDC) of these developments and direct them to contact MariTEL to begin separate, independent discussions regarding the future use of channel 87.
- 4) That the USCG not proceed with the mandatory carriage requirement, additional PAWSS AIS installations, and other activities that require use of MariTEL spectrum until such time as an agreement can be reached.

#### **Issues and Implications of the Interim Rule Requiring Mandatory AIS Carriage [excerpts from MariTEL's comments to USCG-2003-14757]**

MariTEL supports the goal of implementing an AIS in the U.S. territorial waters and endorses the associated benefits:

"it will facilitate vessel-to-vessel and vessel-to-shore communications; it will enhance good order and predictability on the waterways, promote safe navigation and contribute to maritime domain awareness to protect the security of our nation's ports and waterways."

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<sup>18</sup> The MariTEL letter refers to the proposed modifications submitted on March 28, 2003 when, in fact, they were submitted March 20, 2003.

<sup>19</sup> USCG letter dated May 16, 2003 to MariTEL.



MariTEL also supports the USCG's decision to harmonize its AIS system with the international ITU-R M.1371-1 AIS standard. This decision best supports effective VTS, ship-to-ship communication and domain awareness.

While MariTEL wholeheartedly supports the adoption and implementation of AIS in the US, we question the USCG's timing of such carriage requirements without the thought and planning necessary for an effective system. Additionally, because the USCG is proceeding with two timelines for AIS implementation – one timeline for VTS areas and another timeline outside VTS areas – the need to define a congruent frequency plan is heightened. The following information demonstrates the unresolved issues that prevent the USCG from insuring a safe implementation of AIS in the US.

**1. The USCG has not demonstrated that it can implement an AIS without the rights to channel 87**

While the temporary interim rule does not overtly identify the channels that will be employed for AIS in the U.S., the USCG's reference to FCC Public Notice DA 02-1362<sup>20</sup> in this proceeding makes clear the USCG's intention to use the channels that have been internationally designated for the high seas - 87B and 88B –in the US territorial waters.

MariTEL is committed to fulfilling its obligations per FCC 80.371 and is therefore waiting, as the FCC's rules contemplate, for the USCG to identify the narrowband-offset frequencies the USCG desires for that purpose. MariTEL terminated the MOA on May 5, 2003 but has yet to receive the USCG's proposal. MariTEL has no regulatory or legal obligation to provide the USCG use of any particular 25 kHz channel -- 87 or otherwise -- for AIS.

While the USCG wishes to take the position that “matters pertaining to AIS licensing, equipment certification, and frequencies are subject to Federal Communications Commission regulations and are not addressed in this rule.” the USCG must not adopt carriage requirements that will be ineffective when they are implemented. Yet, these carriage requirements *will* be ineffective when adopted, because they will impermissibly implicate spectrum over which private entities (MariTEL and incumbent licensees), and not the USCG, has control. Contrary to the USCG's assertion, AIS channels are not subject to FCC regulations. The FCC has not designated frequencies for AIS use and has not initiated a proceeding to designate channels for AIS use. It is up to the USCG, not the FCC, to ensure that frequencies are available for AIS use. With respect to channel 87, the FCC Notice, cited by the USCG, simply recognizes rights, now terminated, that the USCG obtained through an agreement with MariTEL, not rights granted by the FCC. It is, therefore, ill considered for the USCG to proceed, without addressing how it expects to operate an AIS system in the US without channels designated for that purpose.

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<sup>20</sup> *Wireless Telecommunications Bureau Announces Use of an Additional Frequency for the United States Coast Guard's Ports and Waterways Safety System*, DA 02-1362, June 13, 2002 (the “FCC Notice”). The USCG has also included this document in the electronic record of this proceeding as 2003-14757-6.





**The following are the implications for AIS stakeholders if the USCG proceeds without access to channel 87 for AIS in the US.**

- a. **Mariners** - Without the use of channel 87 for AIS in U.S. territorial waters, vessels will be required to transition from channel 87 (AIS1) to an alternate channel. ITU-R M.1371-1 AIS technology safely supports alternate AIS channel use in areas where AIS1 or AIS2 is not available. Further, International Association of Maritime Aids to Navigation and Lighthouse Authorities (IALA) provides several processes for safely transitioning vessels to alternate AIS channels including three (3) automatic and one (1) manual processes. Because none of these automatic methods are ubiquitously available in the US, the competent authority (the USCG) bears the responsibility to insure that mariners can manually transition to authorized AIS frequencies within US waters. If the mariner must manually tune to authorized AIS frequencies there must be clear direction from the competent authority (the USCG) for the mariners to safely manage AIS frequencies. If the mariner fails to safely transition to approved regional AIS channels, the vessel would become “invisible” to VTS and other ships, potentially causing the loss of property and/or life at sea.
- b. **VTS / VMRS users** - If the USCG does not implement a method to automatically control tuning to authorized AIS channels, VTS vessels may become inadvertently tuned to the wrong channel for AIS and would not be able to communicate with the VTS operators or see other vessels.
- c. **Marine Domain Awareness** - Use of alternate AIS channels complicates vessel tracking by requiring separate networks to track vessels inside and outside of the 12 mile US territorial waters, with the more challenging exception of the Gulf of Mexico whose territorial waters extend approximately from the southern tip of Texas to the southern tip of Florida. Additionally, relying on mariners to manually tune AIS transponders enhances the probability that a mariner will inadvertently become tuned to the wrong channel for AIS and become “invisible” to the AIS surveillance system. Extreme care is necessary to proactively monitor vessel movements across an AIS using multiple channels without impacting the effectiveness of the marine domain awareness capability.
- d. **Maritime Transportation Security Act of 2002** - Without rights to Channel 87, the MTSA’s expected benefits and their timing will not be realized. Contrary to the Congressional mandate, the current implementation plan could potentially cause a loss of property and/or life from potential terrorist attacks.

**2. The USCG has not demonstrated how it will mitigate interference to the AIS from MariTEL’s adjacent channel operation**

Galaxy Engineering Services, Inc. (Galaxy), a wholly owned subsidiary of American Tower, Inc. (NYSE:AMT), has employed its industry leading wireless RF interference prediction software to

evaluate the interference impact to the AIS from MariTEL's operation on adjacent channels. The USCG cites AIS testing of an early-generation DSC ITU-R M.825-3 as the basis to "identify any operational and technical problems that would have to be resolved before implementation of the latest AIS technology (ITU-R M.1371-1 version)." The USCG's obvious assumption is that ITU-R M.825-3 duplex and ITU-R M.1371-1 simplex systems operate similarly. However, Galaxy's RF studies<sup>21</sup> show that ITU-R M.1371-1 simplex systems are much more susceptible to RF interference from other users of maritime frequencies than the USCG anticipates. MariTEL's operation on adjacent frequencies (channels 27 and 28 for example) will unintentionally disrupt or shutdown ship-to-ship and/or ship-to-shore AIS communications. The USCG's decision to require carriage and reliance on AIS technology using channels in close proximity to MariTEL's commercial operations will potentially result in the loss of property and/or life at sea.

**The following are the implications for several AIS stakeholders from interference due to operations on adjacent channels by MariTEL and incumbent licensees.**

- a. **Mariners** - RF interference to an AIS can disrupt or completely "over-load" an AIS transponder thereby significantly reducing or eliminating a vessel's ability to "see" other users of the AIS channel. Also, because of the intermittent nature of the interference and the potentially low number of vessel contacts in non-VTS areas, the mariner may not realize the AIS is functioning incorrectly. A vessel's reliance on an AIS in close proximity to MariTEL's commercial operations could lead to unnecessary loss of property and/or life at sea.
- b. **VTS / VMRS users** - RF interference affects a VTS using an AIS in a similar manner to the impact to mariners. AIS shore sites can be disrupted or completely "over-loaded," thereby significantly reducing or eliminating a VTS's ability to "see" other users of the AIS channel. A VTS's reliance on an AIS in close proximity to MariTEL's commercial operations could lead to unnecessary loss of property and/or life at sea.
- c. **Marine Domain awareness** - An AIS deployed outside of a VTS/VMRS area for domain awareness will be impacted similarly to VTS AIS operations. AIS shore sites can be disrupted or completely "over-loaded", thereby significantly reducing or eliminating the ability to "see" other users of the AIS channel for domain awareness.

**3. The USCG has not demonstrated that it can eliminate interference from ship station AIS transponders on adjacent commercial channels**

It is well accepted within IALA and the IMO that an ITU-R M.1371-1 AIS simplex mobile will interfere with adjacent maritime channel operations. IMO's SN/Cir.227 dated 6 January 2003 recommends stringent ship borne antenna separation guidelines to minimize but not eliminate interference (see Attachment III - Sections 2.1-2.3). Galaxy's interference study confirms IMO's

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<sup>21</sup> Reference Galaxy's study titled, *Shared Site Interference Analysis- Considerations for AIS 1371 and Adjacent Channel Operations*, June 16, 2003.



findings and predicts that communication on channels around a mobile AIS unit's channel, will severely impact, if not completely eliminate, the viability of those channels for commercial operations.

The interference to MariTEL and other incumbent licensees' adjacent channels from the currently adopted AIS carriage requirement is an unconstitutional taking of property without just compensation. As the U.S. Supreme Court has made clear, a government regulation that prohibits the beneficial use<sup>22</sup> of private property violates the Fifth Amendment absent the payment of just compensation.<sup>23</sup> Under the court's reasoning in *Loretto*, the AIS carriage requirement amounts to a taking of channel 87 and adjacent spectrum. The carriage requirement voids MariTEL's investment-backed expectations for the commercial use of roughly 33% of the firm's licensed spectrum assets – including at a minimum; channels 27, 87<sup>24</sup>, and 28 - by permanently physically occupying this spectrum with Coast Guard's caused or mandated harmful interference.<sup>25</sup> Such a taking of MariTEL's property can be made only upon payment of just compensation to MariTEL.<sup>26</sup>

The following are the implications for several AIS stakeholders from AIS vessel interference to other MariTEL channels.

- a. **Mariners** - Impairs the ability of vessels equipped with AIS transponders to receive maritime VHF communication services such as e-mail, short messaging and automatic vessel location (AVL) services.
- b. **MariTEL** – Galaxy's RF studies indicate that MariTEL will lose approximately 33% of its licensed frequency, which severely impacts MariTEL's ability to provide communications services to the maritime industry.

In summary, the absence of an agreement between the USCG, MariTEL and incumbent licensees for the use of a substantial amount of FCC licensed spectrum will force the USCG to implement

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<sup>22</sup> See *Lucas v. South Carolina Coastal Council*, 505 U.S. 1003, 1019 (1992) (“there are good reasons for our frequently expressed belief that when [a property owner] has been called upon to sacrifice all economically beneficial uses in the name of the common good, that is, to leave his property economically idle, he has suffered a taking.”).

<sup>23</sup> See, e.g., *Loretto v. Teleprompter Manhattan CATV Corp. et al.*, 458 U.S. 419, 426-27 (1982) (holding that, while even extensive regulation of private property is allowable in the public interest, governmental action that prohibits beneficial use of property is a taking, and requires just compensation) (citing *Penn Central Transportation Co. v. New York City*, 438 U.S. 104, 127-128 (1978)).

<sup>24</sup> *Id.* at 426.

<sup>25</sup> *Id.* at 426-27. Electromagnetic radio spectrum is as much a finite, tangible, physical property as land—its quantity is clearly defined, and separate physical portions are allocated and assigned by the Federal Communications Commission in order to eliminate interference problems that decrease the value of spectrum overall. The interference resulting from the AIS carriage requirement would render channel 87 unusable as much as a local ordinance prohibiting the use of beachfront property. See *Lucas*, 505 U.S. at 1003.

<sup>26</sup> *Id.* at 441.



either a marginally acceptable duplex, 12.5 kHz AIS network for port operations or a dangerously unacceptable simplex AIS network with absolute certain interference for marine communications.

### **Conclusion**

In spite of the delays and associated financial impact, MariTEL continues to pursue a viable solution that promotes the rapid adoption and utilization of AIS. We believe the first hurdle for resolution is for Congress to determine whether a national shore station deployment is required by December 2004 to coincide with the MTSA schedule for AIS mandatory carriage as a tool for collision avoidance, vessel traffic services, port security, and surveillance for maritime domain awareness. Regardless of the implementation schedule, it is imperative that any domestic AIS solution use channels 87B (AIS1) and 88B (AIS2) for seamless interoperability between the high seas and U.S. territorial waters for all of these AIS applications. To accomplish this vision and protect MariTEL's VPCSA rights as licensed by the FCC, the USCG will be required to enter into a commercial agreement with MariTEL to offset the substantial impairment to the firm's spectrum assets and inability to operate as a marine communication services provider.